

The TWENTY-FOUR AGES of the EARTH

WHAT is the age of the world? How old are certain fossil remains? When did man first appear on earth? How long ago in the world's history did this or that event take place? These are some of the questions that geologists are called upon to answer.

Disappointment or impatience is commonly expressed because definite figures are not forthcoming in reply to these and similar questions, yet a majority of people are incredulous or skeptical if tens or hundreds of thousands of years are mentioned in connection with recent geologic events, and millions of years in connection with those that preceded them. The average person has only a vague conception of the extent of geologic time or the slowness of biologic evolution and physiographic development, and it is difficult for the finite mind to grasp the meaning of millions, when applied to years, unless the figures can be visualized by some scale of comparison or by some method of diagrammatic representation.

A method utilized in lectures and apparently with satisfactory results is described in the Scientific American by Arthur Hollick. The basic idea is that a clock or chart is made to convey an idea of the time factor by translating years into terms of hours and minutes. This chart is based upon (1) an assumed age for the earth of 72,000,000 years, which is a fair average of the many estimates made by physicists and geologists, and (2) the ratios between the several geologic time divisions as estimated by geological authorities.

The clock dial, representing the age of the earth, or the cosmic day, is divided into 24 hours, hence each hour is equivalent to 3,000,000 years of geologic time. The estimates of the geologic time ratios are to the effect that pre-Paleozoic, Paleozoic and Mesozoic time are respectively twelve, eight and three times the duration of Neozoic time, in which we live today. If these ratios are applied to the hour divisions of the clock dial the following results are secured:

Pre-Paleozoic time, 12 hours = 36,000,000 years
Paleozoic time, 8 hours = 24,000,000 years
Mesozoic time, 3 hours = 9,000,000 years
Neozoic time, 1 hour = 3,000,000 years

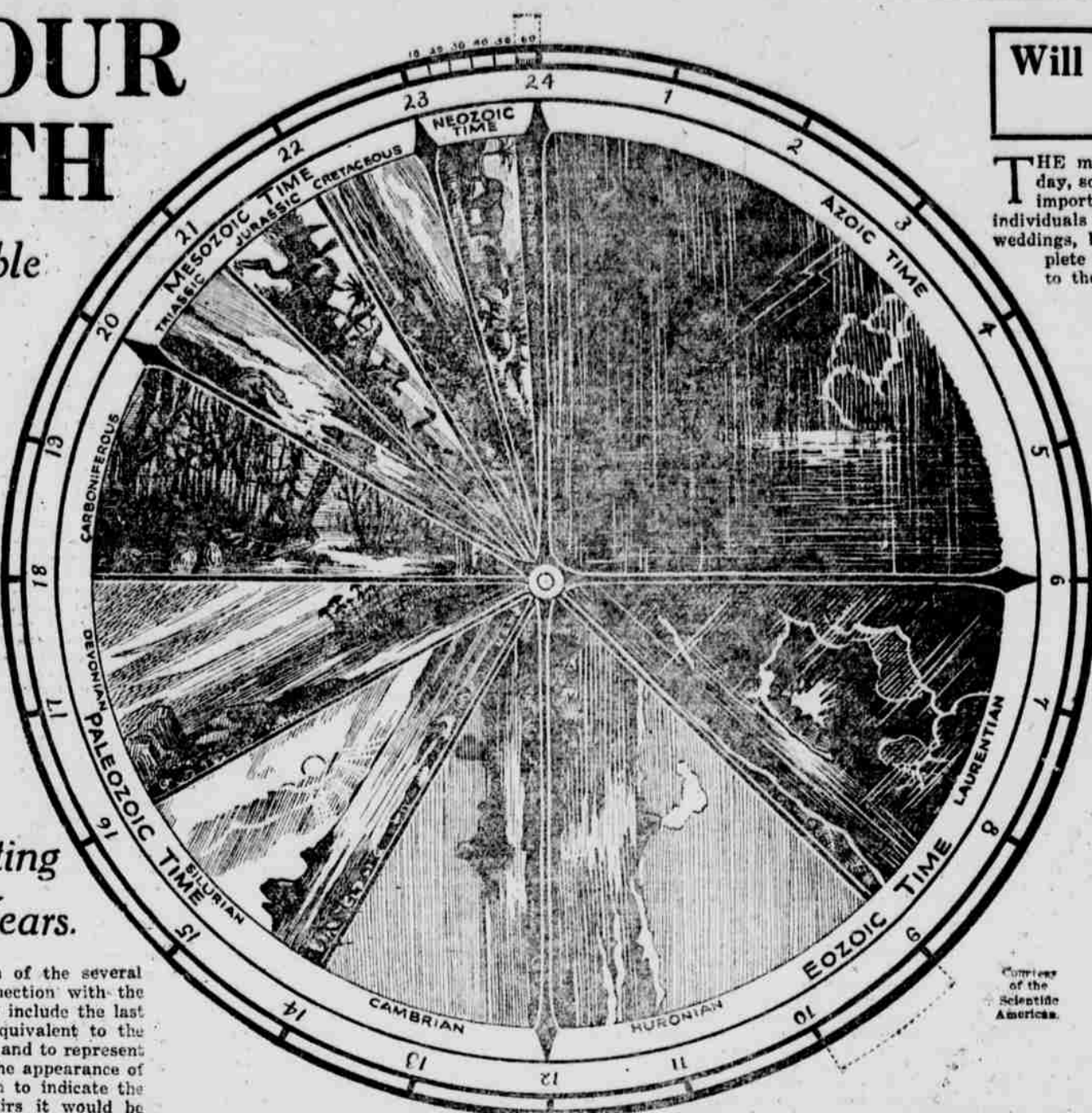
By subdividing each of the time divisions into its appropriate geologic periods the approximate antiquity of each period is indicated.

The even subdivision of pre-Paleozoic time into Azolic and Eozoic is purely arbitrary, as is

The Remarkable Geologic Clock That Shows Comparative Lengths of the Period Into Which the History of the Globe Falls, Each Hour Representing Three Million Years.

also the indicated time duration of the several geologic periods, except in connection with the Quaternary, which is assumed to include the last 500,000 years of cosmic time, equivalent to the last 10 minutes of the 24th hour, and to represent the time that has elapsed since the appearance of man; and if any one should wish to indicate the historical period of human affairs it would be represented approximately by the final 12 seconds of the dial, representing approximately 600,000 years.

In studying the various ages of the earth scientists learned that the globe is not an absolutely unyielding solid. There are several methods for evaluating the elasticity of the whole earth and the results are a little surprising.



The ocean tides, as still another authority points out, have an amplitude less than that they would have if the earth were absolutely rigid and from this difference the rigidity of the earth may be calculated. On this method it appears that the earth is about as rigid as if it were composed wholly of steel.

Still another method is based on observations made on the displacements of the poles. If the earth were absolutely rigid this movement, it is estimated, would have a period of 305 days. The actual period, however, is longer, and the difference enables scientists to calculate the elasticity of the earth.

Will the MOVIE CAMERA REPLACE the DIARY?

THE making of movies of a New York wedding, the other day, so that the couple could have an animated record of the important event in their lives, brings out the fact that many individuals now are having motion pictures made not only of weddings, but of anything else that will help fill out a complete picture record of this earthly span "from the cradle to the grave."

Many persons are now using the motion picture camera where the pocket picture machine used to suffice. Every once in a while the children are photographed at their various activities, winter and summer. If a new automobile is bought the first ride is made the subject of a picture, which is later flashed on the screen. When a trip South or to a mountain summer resort is made the movie camera records the story. An afternoon tea is made the subject of at least a few hundred feet of film. In fact, the citizen of the future may write down his daily experiences about as follows:

"March 1—Arose and had a picture made of my wife serving coffee from a new silver urn, which she prizes highly, as well she might, for it cost me many of these sadly depreciated dollars of today. Arrived late at office, as I stopped on the way and had a picture made of an extremely interesting clash between an automobile and a street car. Home early to dinner, after having had a motion picture made of my new office."

"March 3—Up late, following a banquet, at which pictures were made of men drinking the last few bottles of champagne still available. Photographed the children sledding and regret that I have no picture that will show them the shape of my old sled, a long, low, rapid affair, much superior to the sleds of today. Tom Brown of our local office is to depart for the far West to open a branch house, and he was made the subject of a motion picture at luncheon. In the late afternoon photographed my wife in her new coat. Had to chide our secretary for failure to order more film, as I wish to photograph the new Persian cat and the collie puppies tomorrow."

In fact, it is pointed out the memoirs and autobiographies in the future are all quite likely to be regarded as out of date unless they have motion pictures as adjuncts. It is not going to be enough for the Boswell of tomorrow to say that his biographical subject delivered such and such a speech on a certain day—there must be motion pictures to show him in the act of delivering that speech. All of which will be quite possible, it is pointed out, if motion picture machines continue to invade the home as biographical necessities as they are doing today.

MAPPING WINDS for the AIRMEN

THE aviator is greatly dependent upon the wind. If he does not like the wind at one level it is his privilege and his duty to seek another level at which the prevailing air currents are more favorable to his voyage. But this assumes that the pilot knows where to seek such a favoring wind; and this is not always in accord with the facts.

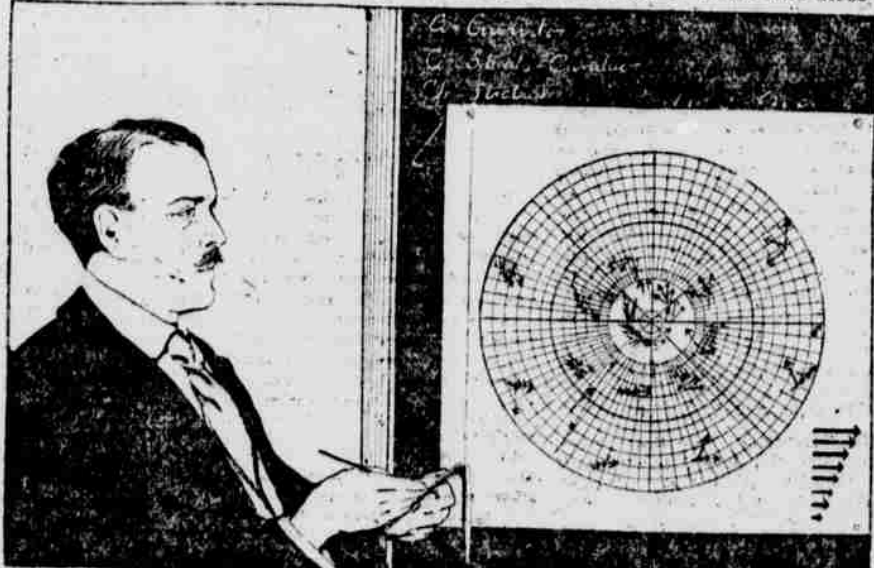
The United States weather bureau is greatly interested in the meteorological problems that confront the aviator, for it sees here an opportunity to get its findings into immediate practical application in a way which the still uncertain ground weather predictions cannot yet hope to

conditions above the earth. The element of altitude has always its significance, but never such a paramount one as in this connection.

One of the new aids to aviation described in the Scientific American is a wind map which shows how fast and from what quarter the wind is blowing at various altitudes. This, of course, is not an instrument of observation; it is simply an ingenious little scheme for recording in most convenient form, the results of observation and inference. But as an ingenious scheme it surely takes front rank.

The wind is represented by arrows. The direction of the arrow indicates of course the direction

The Aviator's
Weather
Map Shows
All the
Conditions
of the
Atmosphere
Through
Which His
Course Lies.



duplicate. The bureau has accordingly paid a great deal of attention to investigating wind conditions aloft. It will be recalled, for instance, that during the period preceding the transatlantic flights, one of the bureau's men was constantly at hand in Newfoundland to advise the aviators as to weather conditions over the ocean, while there was likewise published by the weather man a comprehensive discussion of all the meteorological considerations involved in transatlantic flying.

Considerable new equipment is called for in the effort to take good account of the atmospheric

tion of the wind; its length is proportional to the velocity. The height is indicated by the concentric circles which form the background of the diagram; the quarter in which the observation is made is shown by the position of the arrow on the circumference of its circle, and a convenient means of reading of this feature of the map is afforded by printing in a few of the radii.

What appear to be crossed arrows are merely overlapping arrows, where winds of substantially the same direction but varying velocity have been found at different times in the same point.

Are There Really Murder Months?

HAVE you ever heard of the "Almanack of Crime"? It is one of the most remarkable almanacs ever published, and is the result of many years' research by a well known European crime expert, who has been steadily collecting statistics for it nearly all his life.

The origin of this unique almanac is very simple. Like a good many others, the expert thought not only that crime was more common during certain months of the year, but that certain crimes occurred more frequently in one month than in another. No one else, however, has taken the trouble to test the theory thoroughly, and so the almanac was born.

The compiler found that most cases of murder occurred in January, June and August, and fewest in November, December and February. The favorite month with poisoners is May, while the month they liked least is September. September, in fact, is one of the least "crimey" months in the whole calendar.

Just as murderers dislike November and December, it was just in these months that burglars and thieves generally got busy. Forgers, as one might have expected, chose round about quarter days more frequently than any other times in the year to show their skill.

The MANY Strange USES for CORK

CORK was known to the ancients. Pliny describes the Roman fishermen as using floats of cork to support their fishing nets. Cork was used by the Romans in the construction of rafts for rivers and in facilitating swimming. For history records that the soldiers whom Camillus sent to the Capitol when it was besieged by the Gauls put on a light dress with cork under it, and when they arrived at the river Tiber they bound their clothes upon their heads, placed the cork under their arms, and so swam across.

Cork was used by the Roman sandal-makers for soles, and they sometimes applied it very

thick in order to increase the stature of those ladies who wished to be thought taller than they really were.

The ancients kept their wines in casks and it was drawn off as wanted. When bottles first came into use the primitive material used as stoppers consisted of the root of liquorice, which was cut and formed to the shape of corks. These roots are still often used in North America for the making of bottle stoppers, and it was not till the manufacture of glassware became general that the practice arose of storing wine in bottles, and then and not before the value of cork as a stopper for bottles became generally acknowledged. Thence came the saying, "This wine is corked"—meaning it tastes of the cork.

Imperviousness to air and water is a rare quality which cork possesses over any other known material; besides, it conveys no disagreeable taste or flavor to the liquid.

There is much spare material in the cutting of corks, which is all utilized. The shreds are ground into powder and mixed with melted india rubber, which forms kamptulicon, and is more durable than floorcloth. Models are made of cork, burnt-cork makes Spanish black for artists and colormen, boys learn swimming on cork supports, lifeboat men wear cork jackets, and where the cork tree grows pails and tubs are made of cork; the roofs of the houses are lined with cork. And what is more comfortable than a pair of cork socks to keep our feet dry?

Cork is the soft elastic bark of a kind of oak which grows in the south of France, Italy, Spain and in the greatest perfection in Portugal. The wood of the tree is of small value except for fuel.

Is LIFE in CITY HEALTHIER Than in COUNTRY?

PROF. O. C. Glaser of the University of Michigan calls attention in Good Health Magazine to an interesting comparison made from army statistics between the physical fitness of city boys and those from the country districts:

"In order to determine whether the average of physical soundness is higher among country boys than among city boys, the following comparison was made: Selection was made of a typical set of cities of 40,000 to 500,000 population, with no large immigrant element, and distributed over 10 different states (Alabama, Arkansas, California, Colorado, Kansas, Montana, Nebraska, New York and South Carolina) and a corresponding set of counties of the same total size, located in the same states and containing no city of 30,000, the total number of registrants

in the two areas being 315,000. The result of the comparison was as follows: Of 35,617 registrants in urban areas, 9989 were rejected; of 44,422 registrants in rural areas, 12,543 were rejected, or 28.47 per cent. of the city boys and 27.96 per cent. of the country boys. The result, therefore, was practically a tie, showing that the country boy does not possess a greater degree of the physical soundness necessary for his acceptance as a soldier."

This is in a way an experiment in heredity. The science of eugenics should include experimental tests as to any measurable effects produced by a change in the environment. Such changes are technically known as "modifications." If two populations have the same average heredity and are subjected to diverse environments, any changes noted may be presumably referred

to the actions of the differing environments. Two distinct populations can, however, rarely have the same heredity. Selections acting through migrations and through survival of the fittest make the inborn qualities of different populations necessarily dissimilar.

Some forces in city life must have been favorable to the health of its growing manhood, some unfavorable; and the same may be said for life in the country. It might have been thought that, on the whole, the advantage of fresher air and a more simple routine would have shown itself in this test, and that the country boys would have won. These results do not, of course, mean that it is not a good idea, when one is ill or run down, to take a trip to the country. In many ways the change wrought upon the individual is immediate and lasting.

The Stupid SQUID As a SEA FOOD

THE government fisheries bureau is now experimenting with the production of evaporated squid in cans. It is recommended as a delicacy.

Americans have never learned to appreciate the squid. That is where they have missed something. Toothsome? Oh, my!

Other peoples have been enjoying this luxury right along for centuries, and we have known it not. The Chinese and Japanese esteem the squid most highly as a comestible. In Chili it is served at restaurants of the best class. Many Americans in San Francisco, where it is commonly sold in the markets, have learned to like it. Even in New York it finds not a few consumers—fresh out of water—among the foreign-born population.

The squid is not a fish, but a mollusk. Though related to the octopus, it is quite different. It is highly valued as bait by fishermen, who, after big storms, gather enormous quantities of these curious animals on the beaches, where they are likely to be found heaped in "windrows."

The squid when full grown is less than a foot long. It always swims backward, its organ of locomotion being a siphon through which it expels water.

The squid has a weakness for staring at a bright light. This oftentimes proves its undoing.

Suppose a calm night with a bright moon. Whole flocks of squids, staring fascinated at the lunar orb, swim backward and run upon the shore opposite the moon, becoming stranded.

They might easily turn about and swim seaward again, but intellect is not the squid's strong point. Invariably, under such circumstances, it runs itself further aground by pumping water through its siphon with all its might, and so it perishes.

Fishermen take advantage of this stupid creature's weakness by going out in boats with



The Squid is a Mollusk and is Related to the Octopus.

torches and advancing slowly toward the sea beach. The squids swim backward while gazing upon the lights and finally run ashore. Then they remain to collect them in baskets.

Varied Symptoms of Eyestrain

THE symptoms of eyestrain are varied. A common symptom is congestion or inflammation of the edges of the eyelids; not infrequently that goes on to the formation of a sty. Headache, especially an evening headache, is one of the most frequent results of eyestrain; eyeache, coming on early in the day, as soon as one begins to use the eyes, is not uncommon. Indigestion that does not yield to dieting and drugs sometimes disappears as if by magic when eyestrain is corrected. Eyestrain cannot always be corrected merely by fitting the eyes with the proper glasses, for it may be that the underlying cause is systematic, and that the treatment calls for tonics, good feeding and rest from overwork and worry.